end footprint of an I-beam which is to be welded to the component. (See beam footprint designated generally F in Fig. 3).

The weld preparations (19) proposed by the present invention are now described with specific reference only to beam 13, and to the single end component 18c which is so labeled in the drawing figures. There are two such weld preparations and connections provided for each I-beam end, and two of these preparations and connections, an upper one and a lower one, are shown in detail for beam 13 in Figs. 2-6, inclusive. Very specifically one preferred and best-mode (embodiment) form of a weld preparation made in accordance with the invention is shown in these figures. For simplicity of illustration and description, beam 13 and end component 18c are shown in different orientations in Fig. 4 than they are in Figs. 1 and 2.

Focusing attention especially on Fig. 4-6, inclusive, here two weld preparations (with welds) are shown at 19 between I-beam 13 and end component 18c with its beam-attaching facial side, or expanse, 18d. The entire end transaxial surfaces, or expanses, of beam 13 are planar, and lie in a common transaxial plane 22 (see Figs. 5 and 6) which is substantially normal to the beam's long axis 13a. No flange material is removed.

Formed appropriately in end component 18c to which the shown end of beam 13 is welded are upper and lower weld-material-receiving troughs 24, 26. These troughs, as can be seen, are disposed confrontingly adjacent the ends of the flanges in beam 13. Preferably, troughs 24, 26 each has a length L2 (see particularly Fig.4), which is greater than the defined, common lateral dimensions L3 (see also Fig. 4) of the beam flanges. An important consequence of this is that troughs 24, 26 possess spaced end regions, 24a, 24b in trough 24, that extend laterally beyond the lateral edges of the beam's flanges. These

as line 32, which is substantially normal to the nominal plane 18e (see Fig. 8) of end component 18c.

Preferably, a short length L_1 (see Fig. 8) of the beam's central web 13b is removed to provide a web recess 13c. This recess furnishes clearance for the beam's flanges to extend conveniently into the weld preparation troughs, and over shelves, such as shelf 30e (see Fig. 8) in trough 30. In this arrangement, of course, the transaxial end expanse of web 13b is not coplanar with the transaxial end expanses of the two flanges.

In this modification of the invention, no I-beam flange is removed to accommodate welding. Again, no added run-off tabs are required, or employed.

Another form of the invention, useable with both modifications thereof as so far described, involves the creation of an elongate vertical channel in the face of a beam end component, extending between and opening at opposite ends to the two prepared weld-preparation troughs (upper and lower), and possessing a lateral width which will accommodate the free insertion of a beam's central web (like web 13b). In such a form, the entire end of a beam can lie in a common plane, and the flanges will extend over regions in the two troughs which are like just mentioned shelf 30e.

An added practice step involved with this modified form of the invention is that the weld preparation troughs are preformed, at each end, with spaced walls that define a walled cavity which accommodates start-up and run-out of molten weld material.

Accordingly, while preferred and best-mode implementations of, and manners of practicing, the invention have been described and illustrated, it is appreciated that other variations and modifications may be made without departing from the spirit of the invention.